REMARKS

The Office Action dated July 19, 2005, has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

The specification, the Abstract and claim 5 are amended. No new matter has been added. Claims 14 and 31 were canceled in a previous submission. Thus, claims 1-13, 15-30 and 32-34 are pending in the present application.

Withdrawal of Office Action dated June 2, 2005

As a preliminary matter, the Applicants appreciate the issuance of the current outstanding Office Action dated July 19, 2005, and the withdrawal of the Office Action dated June 2, 2005.

Due to the US PTO's failure to provide a copy of the cited reference entitled, "Object-Oriented Modeling for Gasoline Engine and Automatic Transmission Systems," by Hong et al. (hereinafter the "Hong Article"), we contacted Examiner A. Saxena on June 27, 2005 and requested a copy of said reference and the issuance of a new Office Action.

The Applicants thank the Examiner for providing a copy of the Hong Article and the issuance of the current outstanding Office Action.

Abstract

The Abstract was objected to due to a grammatical error. The Abstract has been amended to obviate this objection.

Specification

The Specification has been amended to correct a wording issue concerning the incorporation of subject matter into the present application. Accordingly, the incorporation by reference of the subject matter is now effective.

Claim Objections

Claim 5 was objected to for a grammatical error. Claim 5 has been amended to obviate this objection.

Claim 6 was objected to as being improperly dependent on claim 2 and claim 23 was objected to as being improperly dependent on claim 19. These objections are respectfully traversed.

The Applicants submit that the dependency of claims 6 and 23 are in compliance with U.S. patent practice. In particular, claim 2 depends from independent claim 1, and claim 2 precedes claim 6. Similarly, claim 19 depends from independent claim 18, and claim 19 precedes claim 23. Thus, it is submitted that claims 6 and 23 are proper dependent claims.

Furthermore, the cited section of MPEP § 608.01(n) addresses the topic of multiple dependent claims, which is irrelevant to the claims 6 and 23 since neither claims is a multiple dependent claim.

Hence, the Applicants respectfully request withdrawal of the claim objection.

Claims 1-13, 15-30 and 32-34 Rejected under 35 U.S.C. § 103(a)

Claims 1-13, 15-30 and 32-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Hong Article in view of Iizuka (U.S. Patent No. 5,885,188). The Applicants respectfully traverse the rejection.

Hong merely discloses a computer model for control system design of gasoline engines with an automatic transmission. In addition, the Hong Article provides a modular programming approach with MATLAB/SIMULINK as a programming environment. Furthermore, engine/transmission systems are analyzed in the object-oriented fashion that provides and ensures easy construction of various computer models by assembling various objects. The top level in the powertrain model of the Hong Article consists of three classes: an engine, a transmission, and a driveline, where each class is designed to perform by itself.

Iizuka merely discloses a method and system for controlling shift in an automatic transmission that can establish a plurality of gear ratios by selectively supplying a hydraulic pressure for a plurality of frictional engaging elements. For instance, Iizuka's disclosure is not concerned with a simulator of the shift control system. Iizuka merely discloses that the learning control unit 26 modifies the hydraulic pressure when the shift shock occurs.

In making the rejection, the Examiner took the position that the Hong Article discloses substantially all of the elements of the claimed invention with the exception of the limitation "a second simulator section ..." The Examiner cited Iizuka for allegedly curing the deficiencies that exist in the Hong Article.

The Applicants respectfully disagree with the Examiner's position and submit that the Hong Article generally provides a computer software simulator for the powertrain system, and thus fails to specifically disclose or teach the limitations as follows:

> Claims 1 and 12
>
> a first simulator section connected to the control system design tool for inputting the hydraulic pressure supply command and for estimating an effective hydraulic

pressure in the hydraulic actuator in response to the hydraulic pressure supply command based on a first model.

Claims 18 and 29

(b) inputting the hydraulic pressure supply command and estimating an effective hydraulic pressure generated in the hydraulic actuator in response to the hydraulic pressure supply command based on a first model.

Furthermore, the Applicants submit that the Hong Article in view of Iizuka fail to disclose or suggest each and every element recited in claims 1, 7, 12, 18, 24 and 29 of the present application. In particular, it is submitted that neither the Hong Article nor Iizuka disclose or suggest at least the following limitations:

Claim 1

a second simulator section connected to the control system design tool and to the first simulator section for determining transfer functions of a second model describing behavior of the hydraulic actuator such that an output of the second model converges with the estimated effective hydraulic pressure,

wherein the second simulator section simulates and evaluates the shift control algorithm based on a third model obtained by incorporating the second model with the first model.

Claim 7 (All the elements recited in the claim but in particular these elements)

undesirable shift phenomenon forecasting means for conducting simulation based on a model, while changing the parameter and forecasting occurrence of undesirable phenomenon using the value based on behavior change of the model; and

algorithm correcting means for correcting the shift control algorithm based on a result of forecasting such that the forecasted occurrence of undesirable phenomenon disappears.

Claim 12

a second simulator section connected to the control system design tool and to the first simulator section for determining transfer functions of a second model describing behavior of the hydraulic actuator such that an output of the second model converges with the estimated effective hydraulic pressure, the second simulator section simulates and evaluates the shift control algorithm based on a third model obtained by incorporating the second model with the first model,

wherein the second simulator section includes:

transmission characteristic analyzing means for analyzing characteristics of the transmission when shift is conducted in accordance with the shift control algorithm through a value to determine deviation of the characteristics from a predetermined standard;

parameter extracting means for extracting a parameter having influence on the characteristics when durability of the transmission is degraded;

undesirable shift phenomenon forecasting means for conducting simulation based on the third model, while changing the parameter and forecasting occurrence of undesirable phenomenon using the value based on behavior change of the third model; and

algorithm correcting means for correcting the shift control algorithm such that the forecasted occurrence of undesirable phenomenon disappears.

Claim 18

(c) determining transfer functions of a second model such that an output of the second model converges with the estimated effective hydraulic pressure; and

(d) simulating and evaluating the shift control algorithm based on a third model obtained by incorporating the second model with a hydraulic circuit of the first model.

Claim 24

(b) extracting a parameter having influence on the characteristics when durability of the transmission is degraded;

(c) conducting simulation based on a model, while changing the parameter and forecasting occurrence of undesirable phenomenon using the value based on behavior change of the model; and

(d) correcting the shift control algorithm based on a result of forecasting such that the forecasted occurrence of undesirable phenomenon disappears.

Claim 29

(c) determining transfer functions of a second model describing behavior of the hydraulic actuator such that an output of the second model converges with the estimated effective hydraulic pressure, and simulating and evaluating the shift control algorithm based on a third model obtained by incorporating the second model with the hydraulic circuit of the first model,

wherein the step (c) includes the steps of:

(d) analyzing characteristics of the transmission when shift is conducted in accordance with the shift control algorithm through a value to determine deviation of the characteristics from a predetermined standard;

(e) extracting a parameter having influence on the characteristics when durability of the transmission is degraded;

(f) conducting simulation based on the third model, while changing the parameter and forecasting occurrence of undesirable phenomenon using the value based on behavior change of the third model; and

(g) correcting the shift control algorithm based on a result of forecasting.

In view of the above, it is respectfully submitted that the combination of references fails to disclose or suggest each and every element recited in claims 1, 7, 12, 18, 24 and 29 of the present application.

It is submitted that in order to establish a *prima facie* case of obviousness, each feature of a rejected claim must be taught or suggested by the applied art of record. See M.P.E.P. §2143.03 and *In re Royka*, 490 F.2d 981 (CCPA 1974). As explained above, the Hong Article in view of Iizuka, taken alone or in combination, do not teach or suggest each feature recited by claims 1, 7, 12, 18, 24 and 29. Accordingly, for at least the above provided reasons, Applicants respectfully submit that claims 1, 7, 12, 18, 24 and 29 are not rendered obvious under 35 U.S.C. § 103 by the teachings of the Hong Article in view of Iizuka, and therefore are allowable.

As claims 2-6 depend from claim 1, claims 8-11 depend from claim 7, claims 13, 15-17 depend from claim 12, claims 19-23 depend from claim 18, claims 25-28 depend from claim 24, and claims 30, 32-34 depend from claim 29, Applicants submit that each of these claims incorporates the patentable aspects therein, and are therefore allowable for at least the reasons set forth above with respect to the independent claims, as well as for the additional subject matter recited therein.

Under U.S. patent practice, the PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish

obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002). The Office Action restates the advantages of the present invention to justify the combination of references. There is, however, nothing in the applied references to evidence the desirability of these advantages in the disclosed structure.

Conclusion

In view of the above, the Applicants respectfully request withdrawal of the rejections of the claims, allowance of claims 1-13, 15-30 and 32-34 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper,

may be charged to counsel's Deposit Account No. 01-2300, referencing Attorney Docket No. 107101-00034.

Respectfully submitted,

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